

CLAIMS

1. A retroreflective, internally illuminated sign which comprises an information display section having at least one flat or curved surface which retroreflects light coming from the front of said sign and transmits light from the interior of said sign; an illuminator disposed on the back of the information display section; and a housing enclosing and holding these information display section and illuminator, said sign being characterized in that

the retroreflective element used in said information display section is a prismatic retroreflective element in accordance with the principle of total internal reflection,

a large number of said prismatic retroreflective elements are disposed in closest contact with each other to form a continuous retroreflective plane, and

at least the retroreflective part on the back of said large number of prismatic retroreflective elements has no bonded area with other layers.

2. An internally illuminated sign according to Claim 1, in which said prismatic retroreflective elements are at least one kind of prismatic retroreflective elements selected from a group consisting of triangular-pyramidal cube-corner elements, full-cube cube-corner elements, tent-formed cube-corner elements and cross-prismatic elements.

3. An internally illuminated sign according to Claim 2, in which said prismatic retroreflective elements comprise retroreflective element pairs which are pairs of triangular-pyramidal cube-corner retroreflective elements disposed in closest-packed state on a common base plane ($S - S'$), protruding from one side of said base plane, each element being defined by three lateral faces (a_1, b_1, c_1 , or a_2, b_2, c_2) which intersect with each other at substantially right angle and which are formed by mutually intersecting V-formed grooves of substantially symmetrical cross-sections, said pair of

triangular-pyramidal retroreflective elements forming a pair as their two confronting lateral faces (c1, c2) have one base line (x) in common, said base plane (S – S') being a common plane including both of the base lines (z, z) of another side of lateral faces (a1, a2) of said pair of triangular-pyramidal retroreflective elements and the base lines (y, y) of the remaining side of lateral faces (b1, b2), another V-formed groove (w, w . . .) of substantially uniform cross-sectional configuration paralleling with said common base line (x) crossing said lateral faces (a1, b1) formed by said grooves (y, z) of the triangular-pyramidal retroreflective elements, at such sites not cutting off the apexes (H1, H2) of the triangular-pyramidal retroreflective elements, whereby dividing said faces (a1, b1) into plural sub-lateral faces (a11, b11, a12, b12 and a13, b13 . . .) to form at least two sets of cube-corner element pairs defined by three substantially perpendicularly intersecting sub-lateral faces (a11, b11, a12, b12 and a13, b13 . . .), and optical axes of these cube-corner element pairs having substantially identical tilt angles (θ) in respect of said common base line (x), the direction of the tilt differing mutually by 180°.

4. An internally illuminated sign according to any one of Claims 1 – 3, in which the daylight color of said information display section is fluorescent color.

5. An internally illuminated sign according to Claim 4, in which the daylight color of said information display section is fluorescent color and its fluorescent luminescence factor Y_F is at least 10.

6. An internally illuminated sign according to any one of Claims 1 – 5, in which the illuminator is either of a back projector type illuminator or a side projector type illuminator.

7. An internally illuminated sign according to Claim 6, in which the back projector type illuminator is based on the principle of electroluminescence.

8. An internally illuminated sign according to any one of Claims 1 – 7, in which the light emitted by the illuminator enters from the back of the prismatic retroreflective elements at an entrance angle of 0 to 30° to the normal line of the surface(s) constituting the information display section.
9. An internally illuminated sign according to any one of Claims 1 – 8, in which said information display section has a cylindrical shape and is capable of retroreflecting light over substantially whole peripheral side of the information display section .